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June 4, 2001

Date

Express Mail No. **EL846165705US**

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2 METHOD AND SYSTEM FOR PROVIDING TECHNICAL  
3 SUPPORT DOCUMENTS VIA THE INTERNET

4 The present invention generally relates to an improved method  
5 and system for providing technical support documents via the Internet. More  
6 specifically, it relates to an improved method and system for providing  
7 technical support documents via the Internet on a peripheral device connected  
8 to a web server storing the requested technical support documents.

9 BACKGROUND OF THE INVENTION

10 Currently, the technical support documents of peripheral devices,  
11 such as printers, are generally included on a CD Rom. The control panel of the  
12 peripheral device provides some control panel messages, which tend to be very  
13 short messages. As a result, they are usually not very informative or helpful.  
14 However, these messages tend to be shorter because they are generally stored

1 in the firmware of the peripheral device. Firmware, which is generally used for  
2 peripheral devices, is software responsible for the operations of the device, and  
3 it is stored in read-only memory (ROM) or programmable ROM (PROM).  
4 However, the storage capacity of the ROM tends to be very limited. Users are,  
5 then, forced to access the technical support document located on CD Rom for  
6 troubleshooting solutions when confronted with an error message displayed on  
7 the device.

8           The problem with this prior method is that it is not always clear  
9 to the user which technical support documents are relevant for a given error or  
10 control panel message. This is especially true for typical users. Users  
11 generally do not have the technical background needed to make such a  
12 determination. Consequently, it would be extremely helpful and desirable if  
13 the peripheral device itself can provide users with the relevant technical  
14 support document for each particular error message displayed. There is  
15 obviously a need for an improved method that can provide more direct  
16 technical support from the actual peripheral device.

#### 17           BRIEF SUMMARY OF THE INVENTION

18           The present invention is directed to an improved method and  
19 system for providing technical support documents via the Internet. More  
20 specifically, it relates to an improved method and system for providing  
21 technical support documents via the Internet on a peripheral device connected  
22 to a web server storing the requested technical support documents.

23           The present invention provides a method that includes the steps  
24 of selecting an event on the device, requesting a default uniform resource  
25 locator ("URL") for the selected event, and returning the technical support

1 document relating to the selected event of the requested uniform resource  
2 locator to the device.

3 The present invention further provides a system that includes a  
4 peripheral device for requesting technical support documents of a selected  
5 event using a default URL, and a web server for servicing the default uniform  
6 resource locator by returning the relevant technical support document that  
7 relates to the selected event.

#### 8 DESCRIPTION OF THE DRAWINGS

9 FIGURE 1 is a schematic diagram of a network system in which  
10 the present method is implemented;

11 FIG. 2 is a flow chart illustrating the preferred functionality of a  
12 method of the present invention;

13 FIG. 3 illustrates an example of control panel messages when the  
14 HELP button is pressed on a peripheral device with no error condition;

15 FIG. 4 illustrates an example of control panel messages when the  
16 HELP button is pressed on a peripheral device with an error message of  
17 "COLOR TONER LOW"; and,

18 FIG. 5 illustrates an example of a technical support document that  
19 can be displayed or printed on the peripheral device.

#### 20 DETAILED DESCRIPTION

21 Broadly stated, the present invention is directed to an improved  
22 method and system for providing technical support documents over the  
23 Internet. The method and system provide a way to provide the relevant  
24 technical documents for a displayed error message straight on the peripheral  
25 device. Aside from providing context sensitive technical support documents to

1 users, the present invention also allows users to access a help menu from the  
2 peripheral device for obtaining the needed technical support documents.

3 An event is first selected either through the help menu or context  
4 sensitive table for a particular displayed error message. Then, a default URL is  
5 requested with the selected event. Consequently, a technical support document  
6 ("TSD") relating to the selected event is returned to the peripheral device. It  
7 should be understood that the use of "a" or "an" is also intended to mean "one  
8 or more" for better readability.

9 Turning now to the drawings, and particularly FIG. 1, a  
10 schematic diagram of a network system in which the present method can be  
11 implemented is shown and indicated generally at 10. A web server computer  
12 12 is shown to be connected to a peripheral device 14, for example a printer,  
13 connected via the Internet 16. The peripheral device preferably contains the  
14 web client, device state table, firmware and the default URL for accessing the  
15 TSD's. The device state table 20 includes a list of the events that have been  
16 logged by the device, and these events are predefined by significant  
17 occurrences or happenings of the device.

18 The web server computer 12, on the other hand, services the  
19 default URL 24 included in the firmware 22 of the peripheral device 14. A  
20 number of TSDs 26 are made available to the peripheral device 14 by the web  
21 server computer 12 when requested. Although a single web server computer  
22 12 and peripheral device 14 are shown, as is known in the art, multiple web  
23 server computers can be used for servicing a URL. Furthermore, in the actual  
24 implementation, a great number of peripheral devices 14 are preferably  
25 connected to the web server computer 12. Because the network system needed  
26 for the implementation of the present invention can vary greatly in complexity  
27 and size, the network topology shown in FIG. 1 is given as an example. Other

1 network systems for implementing the present invention are contemplated and  
2 are within the scope of the present invention.

3 Turning to an important aspect of the preferred embodiment of  
4 the present invention, a flow chart of the preferred functionality of a method is  
5 shown in FIG. 2, and indicated generally at 30. The method is initiated by a  
6 user pushing HELP on the peripheral device (block 32). The HELP button on  
7 the peripheral device is the preferred dedicated switch to initialize the device to  
8 start the method to request a technical support document. However, other  
9 implementations of the dedicated switch can be used. For example, as the  
10 control panel display becomes larger and more sophisticated, an icon on the  
11 display may be available to users instead of a push button. Other  
12 implementations of the dedicated switch are contemplated and are within the  
13 scope of the present invention.

14 The device first reads the device state table (block 34) and  
15 obtains the most recently activated event that is to be selected as the selected  
16 event (block 36). Furthermore, the device also obtains a default URL from the  
17 firmware (block 38), which will be used later to request the TSD once the event  
18 selection has been finalized. It is next determined whether a display is  
19 available on the peripheral device (block 40). If a display is not available  
20 (block 40), the device, using its embedded web client, continues by requesting  
21 the default URL with the selected event (block 42), which is the most recently  
22 activated event in this case. The most recently activated event is automatically  
23 selected by the method, because the user cannot select another event through  
24 the help menu on the peripheral device without the display being available.

25 If, on the other hand, a display is available on the peripheral  
26 device (block 40), it is next determined whether the most recently activated  
27 event obtained from the device state table indicates an error (block 44). If the

1 most recently activated event does indicate an error (block 44), the device is  
2 preferably configured to again request the default URL with the selected most  
3 recently activated event (block 42). From this configuration, the peripheral  
4 device is able to return a context sensitive TSD to the user. In other words,  
5 since the device requests a TSD related to the error event, only the relevant  
6 TSD will be returned to the user.

7           However, if the most recently activated event is not an error  
8 (block 44), the device is configured to request the default URL without a  
9 selected event (block 46). Because a selected event was not included with the  
10 request for the default URL (block 46), the web server computer 12, in  
11 response, returns a help menu (block 48). The help menu is then displayed to  
12 the user (block 50), and the user can then accordingly select another event from  
13 the menu (block 52). A request for the default URL with the selected event  
14 will again be sent to the web server computer (block 42). In the preferred  
15 embodiment, the help menu is located on the web server computer, and a  
16 request for the default URL without a selected event will prompt the web  
17 server computer to return a help menu. However, other implementations can  
18 be used, such as storing the help menu with the firmware on the device. In this  
19 case, when a request for the default URL is prompted without a selected event,  
20 the device can be configured to automatically return the help menu on the  
21 display. There may be other implementations with slight modifications,  
22 however these various implementations are contemplated and are within the  
23 scope of the present invention.

24           Once the selected event is obtained, either from the device state  
25 table (block 36) or from the user help menu (block 52), a request for the default  
26 URL with the selected event is made upon the web server computer (block 42),  
27 which prompts it to return a TSD relating to the selected event (block 54).

1 After receiving the TSD (block 54), the device reads the device configuration  
2 from the firmware (block 56) to determine whether the TSD should be printed  
3 or displayed (block 58). Accordingly, the TSD is printed (block 60) or  
4 displayed (block 62) to the user, depending on the device configuration. In  
5 peripheral devices without a display, the device configuration can only be  
6 defined to print the TSD. However, for the peripheral devices with a display, it  
7 is contemplated that users can select the default device configuration to print or  
8 display the TSD.

9 Because the functionalities of each peripheral device can vary  
10 greatly, the preferred method can also be altered as a result. It is contemplated  
11 that the present method can be changed to accommodate different devices and  
12 their particular models as well. As a result, it should be understood that these  
13 other methods are within the scope of the present invention.

14 An example of control panel messages when the HELP button is  
15 pressed on the peripheral device when there is no error condition is shown in  
16 FIG. 3 and indicated generally at 70. More specifically, FIG. 3 shows an  
17 example of the help menu that can be displayed to users when the most recently  
18 activated event from the device state table is not an error. From this help  
19 menu, users can choose an event or a topic for requesting a TSD from the web  
20 server computer. For this particular example, the peripheral device is a printer  
21 with a display control panel. Consequently, the events are configured and  
22 designed to fit the printer. However, the present invention can also work with  
23 any type of peripheral devices, such as a scanner or a fax machine. The help  
24 menu can vary as a result. Because the display on the control panel is generally  
25 small in size, typically only two to three lines can be displayed at a time. In  
26 this example, the dashed line is to indicated when users must scrolled down to  
27 see the next message.

1           Turning to another example, an exemplary display of the control  
2 panel messages of a printer when the HELP button is pressed on an error  
3 message of "COLOR TONER LOW" is shown in FIG. 4 and indicated  
4 generally at 80. In this scenario, a printer is displaying a "COLOR TONER  
5 LOW ?" message on the control panel. A user presses the help button on the  
6 printer, which prompts the device to display the panel messages shown in FIG.  
7 4. In this particular example, the user can select to print the help document  
8 (i.e., TSD) from the web. If selected, the device sends a URL request with the  
9 event defining the "COLOR TONER LOW" message to the web server  
10 computer 12, and a TSD relating to that event will be printed on the device.

11           An example of a technical support document that can be  
12 displayed or printed on the peripheral device is shown in FIG. 5. As shown,  
13 the TSD provides a detailed description to solve a particular problem, specially  
14 an error when printer will not pull paper from a particular tray. However, in  
15 this example of the TSD, no figures are shown. But, since the capacity of the  
16 memory storage is no longer a major concern, figures for user friendly  
17 instructions can be included for clarity.

18           Because the TSDs are stored on the web server computer, very  
19 extensive and informative documents can be provided to users. This is so  
20 because the limited memory storage of the ROM is no longer being used for  
21 storing the TSDs for the peripheral device. But at the same time, the web  
22 server computer is able to return the TSD that is most relevant to an error that  
23 the device might be experiencing. Furthermore, since the TSDs needed are  
24 stored on the web server computer, any updates or changes can easily be  
25 accomplished at one central location for devices that were sold throughout the  
26 world.



1           From the foregoing description, it should be understood that an  
2 improved method and system for providing technical support documents via  
3 the Internet has been shown and described, which has many desirable attributes  
4 and advantages. The method and system provide a way for users to easily  
5 obtain context sensitive or requested technical support documents via the  
6 Internet. As a result of these documents being stored on a web server computer  
7 outside of the peripheral device, extensive and informative graphical technical  
8 support documents can be provided to users. Furthermore, because the present  
9 invention provides for a central location to obtain these documents, any  
10 updating or changing of these documents can be easily achieved with fewer  
11 efforts.

12           While various embodiments of the present invention have been  
13 shown and described, it should be understood that other modifications,  
14 substitutions and alternatives are apparent to one of ordinary skill in the art.  
15 Such modifications, substitutions and alternatives can be made without  
16 departing from the spirit and scope of the invention, which should be  
17 determined from the appended claims.

18           Various features of the invention are set forth in the appended  
19 claims.